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jc955 U.S. PTO 10/20/00

UTILITY PATENT APPLICATION TRANSMITTAL *Only for new nonprovisional applications under 37 C F R § 1 53(b)*	*Attorney Docket No.*	A-6687
	First Inventor or Application No.	JERDING ET AL.
	Title	MEDIA-ON-DEMAND BOOKMARK SYSTEM
	Express Mail Label No.	EL687172997US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents

1. ☒ Fee Transmittal Form *(e.g PTO/SB/17)*
   (Submit an original and duplicate for fee processing)
2. ☒ Specification [Total Pages 26]
3. ☒ Drawings *(35 U.S.C. § 113)* [Total Sheets 13]
4. Oath or Declaration [Total Pages 4]
   a. ☒ Newly executed (original or copy) Unexecuted
   b. ☐ Copy from a prior application *(37 C.F.R. § 1.63(d))*
   (for continuation/divisional with Box 16 completed)
      i. ☐ DELETION OF INVENTORS
      Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b)

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5. ☐ Microfiche Computer Program *(Appendix)*
6. ☐ Nucleotide and/or Amino Acid Sequence Submission *(e.g. PTO/SB/17)*
   a. ☐ Computer Readable Copy
   b. ☐ Paper Copy (identical to computer copy)
   c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

7. ~~☒ Assignment Papers (cover sheet & document(s))~~
8. ☐ 37 C.F.R. § 3.73(b) Statement ☐ Power of Attorney
   (when there is an assignee)
9. ☐ English Translation Document (if applicable)
10. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
11. ☐ Preliminary Amendment
12. ☒ Return Receipt Postcard (MPEP 503)
    (Should be specifically itemized)
13. ☐ Small Entity Statement(s) ☐ Statement filed in prior application, Status still proper and desired
14. ☐ Certified Copy of Priority Document(s)
    (if foreign priority is claimed)
15. ☐ Other:

16. ☒ **If a CONTINUING APPLICATION,** *check appropriate box, and supply the information below and in a preliminary amendment:*
☐ Continuation ☐ Divisional ☒ Continuation-in-part (CIP) of prior application No: 09/590,488
Prior application information: *Examiner:* UNKNOWN *Group Art Unit:*2755

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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: JERDING ET AL.
DOCKET NO.: A-6687
TITLE: MEDIA-ON-DEMAND BOOKMARK SYSTEM

OCTOBER 19, 2000

FEE TRANSMITTAL FORM

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Marcia Burdick

Docket No. A-6687

MEDIA-ON-DEMAND BOOKMARK SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part of Application No. 9/590,488, filed on June 9, 2000, and claims the benefit of U.S. Provisional Application No. 60/170,302, filed on December 13, 1999, both of which are entirely incorporated herein by reference.

FIELD OF THE INVENTION

This invention relates in general to television systems, and more particularly, to the field of media-on-demand.

BACKGROUND OF THE INVENTION

With the recent advances in digital transmission technology, cable television systems are now capable of providing much more than the traditional analog broadcast video. In implementing enhanced programming, the home communication terminal ("HCT"), otherwise known as the settop box, has become an important computing device for accessing video services and navigating a subscriber through a maze of available services. In addition to supporting traditional analog broadcast video functionality, digital HCTs (or "DHCTs") now also support an increasing number of two-way digital services such as video-on-demand.

Typically, a DHCT is connected to a cable or satellite television network and includes hardware and software necessary to provide the functionality of the digital television system at the client's site. Preferably, some of the software executed by a DHCT is downloaded and/or updated via the cable television network. Each DHCT also typically includes a processor, communication components and memory, and is connected to a television or other display device, such as a personal computer. While many conventional DHCTs are stand-alone devices that are externally connected to a television, a DHCT and/or its functionality may be integrated into a television or personal computer, as will be appreciated by those of ordinary skill in the art.

Media-on-demand providers present users with video presentations, such as movies, via DHCT's. Many users who request a video presentation are more interested in watching certain portions of said video presentation and less interested in watching other portions.

Using fast forward and rewind features to access the more desired portions of a video presentation are inconvenient and time consuming. Therefore, there exists a need to provide users with means for easily and conveniently accessing portions of video presentations that users desire.

SUMMARY OF THE INVENTION

The invention can be viewed as a system for providing media to a user via an interactive media services client device coupled to a programmable media services server device. A method of the preferred embodiment includes receiving user input associated with a visual scene contained in a sequential visual media, storing information related to the visual scene in memory, receiving user input requesting the visual scene, and providing the user with the visual scene.

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BRIEF DESCRIPTION OF THE DRAWINGS

The invention can be better understood with reference to the following drawings. The components in the drawings are not necessarily drawn to scale, emphasis instead being placed upon clearly illustrating the principles of the present invention. In the drawings, like reference numerals designate corresponding parts throughout the several views.

FIG. 1 is a block diagram of a cable television system in accordance with one preferred embodiment of the present invention.

FIG. 2 is a diagram of the headend 11 as depicted in FIG. 1.

FIG. 3 is a block diagram of a DHCT and related equipment, in accordance with one preferred embodiment of the present invention depicted in FIG. 1.

FIG. 4 is a remote control device that can be used to provide user input to the DHCT shown in FIG. 3.

FIG. 5 shows an example video-on-demand (VOD) rental selection window that illustrates a media rental list presented to the user by the DHCT of FIG. 3.

FIG. 6 shows an example personal identification number (PIN) entry screen that is presented to the user by the DHCT of FIG. 3, after the user selects a video title via the VOD rental selection window illustrated in FIG. 5.

FIG. 7 shows an example current rental screen that is presented to the user by the DHCT of FIG. 3 after the user stops the presentation of a video rental that was requested via the VOD rental selection window illustrated in FIG. 5.

FIG. 8 shows an example bookmark name selection window that is presented to the user by the DHCT of FIG. 3 after the user requests the insertion of a bookmark via the current rental screen illustrated in FIG. 7.

FIG. 9 shows an example bookmark confirmation screen that is presented to the user by the DHCT of FIG. 3 illustrating bookmark name information.

FIG. 10 shows an example bookmark selection window that is presented to the user by the DHCT of FIG. 3 illustrating available bookmark selections.

FIG. 11 is an alternative embodiment to the bookmark selection window of FIG. 10.

FIG. 12 is an alternative embodiment to the bookmark selection window of FIG. 11.

FIG. 13 is an alternative embodiment to the bookmark selection window of FIG. 12.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention now will be described more fully hereinafter with reference to the accompanying drawings, in which preferred embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art.

The present invention is generally implemented as part of a cable television system (CTS). Hence, an illustrative CTS 10 and its operation will be described initially. FIG. 1 shows a block diagram view of a CTS 10, which is generally a high quality, reliable and integrated network system that features video, audio, voice and data services to DHCT users. Although FIG. 1 depicts a high level view of a CTS 10, it should be appreciated that a plurality of cable television systems can tie together a plurality of regional networks into an integrated global network so that DHCT users can receive content provided from anywhere in the world.

The CTS 10 delivers broadcast video signals as digitally formatted signals in addition to delivering traditional broadcast analog video signals. Furthermore, the system can support one way broadcast services as well as both one-way data services and two-way media and data services. The two-way operation of the network allows for user interactivity with services, such as Pay-Per-View programming, Near Video-On-Demand (NVOD) programming according to any of several known NVOD implementation methods, View-on-Demand (VOD) programming (according to any of several known VOD implementation methods), and interactive applications, such as Internet connections and interactive media Guide (IMG) applications.

The CTS 10 also provides the interfaces, network control, transport control, session control, and servers to access content and services, and distributes content and services to DHCT users. As shown in FIG. 1, a typical CTS 10 comprises a headend 11, hubs 12, an HFC access network 17, and users' digital home communication terminals (DHCTs) 16. It should be appreciated that although a single component (e.g. a headend) is illustrated in FIG. 1, a CTS 10 can feature a plurality of any one of the illustrated components or may be configured with alternative embodiments for any one of the individual components or with

yet other additional components not enumerated above. A content provider (not shown) transmits media content to a headend for further transmission to users downstream in the network.

Content provided by a content provider is communicated by the content provider to one or more headends 11. From those headends the content is then communicated over a communications network 18 that includes a plurality of HFC access networks 17 (only one HFC access network 17 is illustrated). The HFC access network 17 typically comprises a plurality of HFC nodes 13, each of which may serve a local geographical area. The hub 12 connects to the HFC node 13 through a fiber portion of the HFC access network 17. The HFC node 13 is connected to a tap 14 which is connected to a network interface unit (NIU) 15 which is connected to a DHCT 16. The NIU 15 is normally located at a user's property and provides a transparent interface between the HFC node 13 and the users' internal wiring. Coaxial cables are typically used to couple nodes 13, taps 14 and NIUs 15 because the electrical signals can be easily repeated with radio frequency (RF) amplifiers.

As the high-level operations of many of the functions of CTSs 10 are well known to those of skill in the art, further description of the overall CTS 10 of FIG. 1 will not be contained herein. It will be appreciated, however, that the CTS 10 shown in FIG. 1 is merely illustrative and should not be construed as implying any limitations upon the scope of the present invention.

FIG. 2 is a block diagram of portions of a headend 11 that is configured to provide media-on-demand (MOD) services in accordance with one embodiment of the present invention. MOD services include, among other things, video-on-demand (VOD) services and respective MOD information suitable to be presented to a user via display of an interactive media guide. MOD server application 19 and a plurality of other server applications 20 are connected to a digital network control system (DNCS) 23 via a high-speed network such as an Ethernet connection 32. The MOD server application 19 is responsible for reserving and configuring system resources needed to provide MOD services and for providing configuration and service data to an MOD client application 63 (FIG.3), including MOD information comprising a catalog of titles available for on-demand viewing and/or on-demand rental by a user.

The DNCS 23 provides complete management, monitoring, and control of the network's elements and broadcast services provided to users. In one implementation, the DNCS 23 uses a data insertion multiplexer 29 and a data QAM 30 to insert in-band broadcast file system (BFS) data into an MPEG-2 transport stream that is broadcast and received via DHCT's communication interface 42 and tuner system 45. The DNCS 23 also contains a session manager 34 that uses Digital Storage Media Command and Control (DSMCC) protocol to set up and maintain MOD sessions. The session manager 34 processes user to network (U-N) session signaling messages, manages allocation of session-related network resources, supports network management operations, acts as a point of contact to the network for the DHCT's 16 in the network 18 to establish individual sessions, and supports MOD services by providing the signaling interface to establish, maintain and release client initiated exclusive sessions.

A service application manager (SAM) server 25 is a server component of a client-server pair of components, with the client component being located at the DHCT 16. Together, the client-server SAM components provide a system in which the user can access services, which are identified by an application to run and a parameter, such as particular data content, specific to that service. The client-server SAM components also manage the life cycle of the applications on the system, including the definition, activation, and suspension of services they provide and the downloading of the applications into the DHCT 16 as necessary.

Applications on both the headend 11 and the DHCT 16 can access the data stored in a broadcast file system (BFS) server 28 in a similar manner to a file system found on operating systems. The BFS server 28 is a part of a broadcast file system that has a counterpart BFS client module 43 (FIG. 3) in a DHCT 16 connected to the network 18. The BFS server 28 repeatedly sends data for applications on a data carousel (not shown) over a period of time in cyclical repeated fashion so that a DHCT 16 that is in need of reading any particular data file or parts thereof may receive it when requested by a user or one or more of its internal running processes.

A VOD content manager 21 is responsible for managing the content on the VOD content servers 22. The MOD server application 19 controls both the VOD content manager 21 and the VOD content servers 22 and utilizes them to help deliver the video and audio streams that make up VOD services. In one embodiment, an MOD content manager and MOD content servers

(not shown) could run respectively in parallel to the VOD content manager 21 and VOD content servers 22 to manage other types of on-demand media content. In an alternate embodiment an MOD content manager replaces the VOD content manager 21 and the MOD content servers replaces the VOD content servers 22. The QAM modulators that comprise the QAM group 24 receive the MPEG-2 transport streams from the VOD content servers 22, convert them into encrypted RF signals at a specified frequency (channel), and transmit them to a DHCT 16 via the network 18.

The QPSK modem 26 is responsible for transporting the out-of-band IP (internet protocol) datagram traffic between the distribution headend 11 and a DHCT 16. Data from the QPSK modem 26 is routed by headend router 27 within the headend 11. The headend router 27 is also responsible for delivering upstream application traffic to the various server applications 19 & 20.

FIG. 3 is a block diagram illustrating a DHCT 16 that is coupled to a headend 11 and to a television 41. Some of the functionality performed by applications executed in the DHCT 16 (such as the MOD client application 63) may instead be performed at the headend 11 and vice versa. A DHCT 16 is typically situated at a user's residence or place of business and may be a stand alone unit or integrated into another device such as, for example, a television set or a personal computer. The DHCT 16 preferably includes a communications interface 42 for receiving signals (video, audio and/or other data) from the headend 11 through the network 18 and for providing any reverse information to the headend 11 through the network 18. The DHCT 16 further includes at least one processor 44 for controlling operations of the DHCT 16, an RF output system 48 for driving the television display 41, and a tuner system 45 for tuning into a particular television channel to be displayed and for sending and receiving various types of data or media from the headend 11. The tuner system 45 includes, in one implementation, an out-of-band tuner for bi-directional quadrature phase shift keying (QPSK) data communication and a quadrature amplitude modulation (QAM) tuner for receiving television signals. Additionally, a receiver 46 receives externally-generated information, such as user inputs or commands from other devices.

The DHCT 16 may also include one or more wireless or wired interfaces, also called ports, for receiving and/or transmitting data to other devices. For instance, the DHCT 16 may feature USB (Universal Serial Bus), Ethernet (for connection to a computer), IEEE-1394 (for

connection to media devices in an entertainment center), serial, and/or parallel ports. The user inputs may, for example, be provided by a computer or transmitter with buttons or keys located either on the exterior of the terminal or by a hand-held remote control device or keyboard that includes user-actuated buttons.

In one implementation, the DHCT 16 includes system memory 49, which includes flash memory 51 and dynamic random access memory (DRAM) 52, for storing various applications, modules and data for execution and use by the processor 44. Basic functionality of the DHCT 16 is provided by an operating system 53 that is primarily stored in flash memory 51. Among other things, the operating system 53 includes at least one resource manager 67 that provides an interface to resources of the DHCT 16 such as, for example, computing resources.

One or more programmed software applications, herein referred to as applications, are executed by utilizing the computing resources in the DHCT 16. Applications stored in flash memory 51 or DRAM 52 are executed by processor 44 (e.g., a central processing unit or digital signal processor) under the auspices of the operating system 53. Data required as input by an application is stored in DRAM 52 or flash memory 51 and read by processor 44 as need be during the course of the application's execution. Input data may be data stored in DRAM 52 by a secondary application or other source, either internal or external to the DHCT 16, or possibly anticipated by the application and thus created with the application at the time it was generated as a software application, in which case it is stored in flash memory 51. Data generated by an application is stored in DRAM 52 by processor 44 during the course of the application's execution. DRAM 52 also includes application memory 100 that various applications may use for storing and/or retrieving data.

An application referred to as navigator 55 is also resident in flash memory 51 for providing a navigation framework for services provided by the DHCT 16. The navigator 55 registers for and in some cases reserves certain user inputs related to navigational keys such as channel increment/decrement, last channel, favorite channel, etc. The client applications may be resident in flash memory 51 or downloaded into DRAM 52. The navigator 55 also provides users with television related menu options that correspond to DHCT functions such as, for example, providing an interactive program guide, blocking a channel or a group of channels from being displayed in a channel menu, and displaying a video-on-demand purchase list.

The flash memory 51 also contains a platform library 56. The platform library 56 is a collection of utilities useful to applications, such as a timer manager, a compression manager, a configuration manager, an HTML parser, a database manager, a widget toolkit, a string manager, and other utilities (not shown). These utilities are accessed by applications via application programming interfaces (APIs) as necessary so that each application does not have to contain these utilities. Two components of the platform library 56 that are shown in FIG. 3 are a window manager 59 and a service application manager client (SAM) 57.

The window manager 59 provides a mechanism for implementing the sharing of the screen regions and user input. The window manager 59 on the DHCT 16 is responsible for, as directed by one or more applications, implementing the creation, display, and de-allocation of the limited DHCT 16 screen resources. It allows multiple applications to share the screen by assigning ownership of screen regions, or windows. The window manager 59 also maintains, among other things, a user input registry 50 in DRAM 52 so that when a user enters a key or a command via the remote control device 80 or another input device such as a keyboard or mouse, the user input registry 50 is accessed to determine which of various applications running on the DHCT 16 should receive data corresponding to the input key and in which order. As an application is executed, it registers a request to receive certain user input keys or commands. When the user presses a key corresponding to one of the commands on the remote control device 80, the command is received by the receiver 46 and relayed to the processor 44. The processor 44 dispatches the event to the operating system 53 where it is forwarded to the window manager 59 which ultimately accesses the user input registry 50 and routes data corresponding to the incoming command to the appropriate application.

The SAM client 57 is a client component of a client-server pair of components, with the server component being located on the headend 11. A SAM database 60 in DRAM 52 includes a data structure of services and a data structure of channels that are created and updated by the headend 11. Many services can be defined using the same application component, with different parameters. Examples of services include, without limitation and in accordance with one implementation, presenting television programs (available through a WatchTV application 62), pay-per-view events (available through a PPV application 64), digital music (not shown), media-on-demand (available through an MOD application 63), and an interactive program guide. In general, the identification of a service includes the identification of an executable application

that provides the service along with a set of application-dependent parameters that indicate to the application the service to be provided. As a non-limiting example, a service of presenting a television program could be executed with a set of parameters to view HBO or with a separate set of parameters to view CNN. Each association of the application component (tune video) and one parameter component (HBO or CNN) represents a particular service that has a unique service I.D. The SAM client 57 also interfaces with the resource manager 67, as discussed below, to control resources of the DHCT 16.

Application clients can also be downloaded into DRAM 52 at the request of the SAM client 57, typically in response to a request by the user or in response to a message from the headend. In this non-limiting example DRAM 52 contains a media-on-demand application (MOD) 63, an e-mail application 65, and a web browser application 66, among others (not shown). It should be clear to one with ordinary skill in the art that these applications are not limiting and merely serve as examples for this present embodiment of the invention. Furthermore, one or more DRAM based applications may, as an alternative embodiment, be resident in flash memory 51. These applications, and others provided by the cable system operator, are top level software entities on the network for providing services to the user.

In one implementation, applications executing on the DHCT 16 work with the navigator 55 by abiding by several guidelines. First, an application utilizes the SAM client 57 for the provision, activation, and suspension of services. Second, an application shares DHCT 16 resources with other applications and abides by the resource management policies of the SAM client 57, the operating system 53, and the DHCT 16. Third, an application handles situations where resources are only available with navigator 55 intervention. Fourth, when an application loses service authorization while providing a service, the application suspends the service via the SAM (the navigator 55 will reactivate an individual service application when it later becomes authorized). Finally, an application client is designed to not have access to certain user input keys reserved by the navigator (i.e., power, channel +/-, volume +/-, etc.).

The MOD client application 63 provides the user with lists of available media titles to choose from and with video presentations requested by the user. The MOD client application 63 provides video presentations to the user by engaging, preferably, in a direct two-way IP (Internet Protocol) connection with VOD content servers 22 (FIG. 2).

An executable program or algorithm corresponding to an operating system (OS) component, or to a client platform component, or to a client application, or to respective parts thereof, can reside in and execute out of DRAM 52 and/or flash memory 51. Likewise, data inputted into or outputted from any executable program can reside in DRAM 52 or flash memory 51. Furthermore, an executable program or algorithm corresponding to an OS component, or to a client platform component, or to a client application, or to respective parts thereof, can reside in flash memory 51, or in a local storage device connected to DHCT 16 and can be transferred into DRAM 52 for execution. Likewise, data input for an executable program can reside in flash memory 51 or a storage device and can be transferred into DRAM 52 for use by an executable program or algorithm. In addition, data outputted by an executable program can be written into DRAM 52 by an executable program or algorithm and can be transferred into flash memory 51 or into a storage device for storage purposes. The present invention is not limited by where or how data and/or applications are stored or retrieved.

Each of the above mentioned applications comprises executable instructions for implementing logical functions and can be embodied in any computer-readable medium for use by or in connection with an instruction execution system, apparatus, or device, such as a computer-based system, processor-containing system, or other system that can fetch and execute the instructions. In the context of this document, a "computer-readable medium" can be any means that can contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus, or device. The computer readable medium can be, for example but not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, device, or propagation medium. More specific examples (a non-exhaustive list) of the computer-readable medium would include the following: an electrical connection (electronic) having one or more wires, a portable computer diskette (magnetic), a random access memory (RAM) (electronic), a read-only memory (ROM) (electronic), an erasable programmable read-only memory (EPROM or Flash memory) (electronic), an optical fiber (optical), and a portable compact disc read-only memory (CDROM) (optical). Note that the computer-readable medium could even be paper or another suitable medium upon which the program is printed, as the program can be electronically captured, via for instance optical scanning of the paper or other medium, then

compiled, interpreted or otherwise processed in a suitable manner, and then stored in a computer memory.

FIG. 4 is a non limiting example of a remote control device 80 that is used to provide user input to the DHCT 16. The arrow buttons 82 include an up arrow button 83, a down arrow button 84, a left arrow button 85, and a right arrow button 86 that are used to scroll through options and/or to highlight an option. The select button 87 may be used to select a currently highlighted option that is provided to the user. Other buttons that are available on the remote control device will be discussed further below. Many alternative methods of providing user input may be used including a remote control device with different buttons and/or button layouts, a keyboard device, a voice activated device, etc. The invention described herein is not limited by the type of device used to provide user input.

With continued reference to FIG. 4 throughout the remaining figures, FIG. 5 shows an example VOD rental selection window 100. As with other window examples discussed below, processor 44 executes program instructions of MOD client application 63 that cause it to direct the window manager 59 to create window 100 via display data that is formatted for television 41. Processor 44 stores the display data or parts thereof in DRAM 52 (as necessary) and transfers the display data to a display output system such as RF output system 48 wherein display data is converted to respective television signals and transmitted to television 41. Of course, the scope of the invention also includes any other method of causing the described windows to appear to the user.

A user may utilize the rental selection window 100 in order to request a video-on-demand rental. Top portion 101 of VOD rental selection window 100 typically contains one or more headings, while the bottom portion 102 typically illustrates relevant navigation buttons available on the remote control device 80 . Video rental list 103 contains the titles of video presentations that are available for rent and a highlighted title area 105. A user may scroll through the video rental list using the up and down arrow buttons 83 and 84 on the remote control device 80 and may request a currently highlighted video title by activating the select button 87. For example, a user may activate the down arrow on the remote control device 80 until the selection "You've Got Mail" 109 is displayed in the highlighted title area 105 and then request to see the video identified by the selection by activating the select button 87. In an alternative embodiment, activating the up and down arrow buttons 83, 84 on

the remote control device 80 results in the shifting of the highlighted title area 105 rather that the shifting of the video titles. A reduced screen area 106 displays an image corresponding to the video title displayed in the highlighted title area 105. As the user scrolls through the video rental list 103, the image displayed in the reduced screen area 106 changes accordingly.

FIG. 6 shows an example personal identification number (PIN) entry window 110 that is presented to the user after the user selects a video title from the rental selection window 100. The top portion 111 contains the heading "PIN ENTRY" while the bottom portion 112 illustrates relevant navigation buttons available on the remote control device 80 . In the current example, bottom portion 102 illustrates that the "A" button 88 may be used to confirm the entry of a PIN and that the "C" button 90 may be used to cancel the current video rental request. A user can enter his PIN using the remote control device 80 while being presented with the PIN entry window 110. Center portion 113 contains entry fields 114 that display a "*" for every PIN entry received from the user. In an alternative embodiment, the entry fields display the actual numbers entered by the user. In yet another alternative embodiment, a user is not presented with a PIN entry screen and is not required to enter a PIN to receive a video rental.

FIG. 7 shows an example current rental window 120 that is presented to the user after the user stops the presentation of a video rental that was requested via the VOD rental selection window 100 (FIG. 5). The user may user the left and right arrow buttons 85, 86 to request a current rental screen belonging to another video presentation that is available to the user. The reduced screen area 106 displays an image from the media rental that was being presented to the user prior to example window 120 being displayed. Information section 121 contains information related to the media rental associated with the image displayed in the reduced screen area 106, including numerical and graphical indications 125 as to the playing time and rental time remaining for the media rental. Rental control options list 122 contains rental control options, such as the option to "Insert a bookmark" 123, and a highlighted option area 124. A user can select a rental control option by using the remote control device 80. For example, a user may activate the down arrow button 84 on the remote control device 80 until the selection "Insert a bookmark" 123 is displayed in the highlighted option area 124, and then request the insertion of a bookmark by activating the select button 87 . As an alternative embodiment, the user could insert a bookmark while viewing a video presentation

by activating a designated bookmark key on an input device such as remote control device 80. The insertion of the bookmark would be confirmed by the MOD client application 63 via a confirmation message such as, for example, a banner that is displayed at the bottom of the television screen stating that a bookmark has been inserted.

FIG. 8 shows an example bookmark name selection window 130 that is presented to the user after the user requests the insertion of a bookmark via the current rental window 120 (FIG. 7). The bookmark name options list 131 contains bookmark name options, such as bookmark name option 132, and highlighted bookmark name area 133. In this example, the MOD client application 63 presents a default bookmark name option as the highlighted bookmark name option based on the location of the bookmark in the video presentation. The bookmark name is retrieved from a data structure containing pre-assigned bookmark names for various scenes in the media rental. The user may choose not to select the default bookmark name option and instead select another bookmark name option available via the bookmark name options list 131. The user may use the remote control device 80 in a manner similar to that explained above in order to browse the bookmark name options list 131 and to make a selection therefrom. For example, the user may press the select button in order to associate the bookmark name "Ship Hits Iceberg" with the media scene represented by the image in the reduced screen area 106. In an alternative embodiment, the user can enter an alphanumeric character sequence to describe the scene via the remote control device 80 or via an alternative input device such as, for example, a keyboard, to annotate the bookmark with a personalized name.

FIG. 9 shows an example bookmark confirmation window 140 informing the user that the media scene represented by the image in the reduced screen area 106 has been bookmarked. In this example, confirmation window 140 is presented to the user after the user selects the bookmark name "Ship Hits Iceberg" via the name selection window 130 (FIG. 8). Information section 121 and the reduced screen area 106 are updated to include the bookmark name selected by the user. In addition the user is provided with an option to "Edit the bookmark name" 141. If the user selects this option, the user is provided once again with the name selection window 130 so that the user may select an alternative bookmark name.

A user-created bookmark comprises a set of attributes, including its name, that are stored in application memory 70 of DRAM 52 or read-write non-volatile memory (not

shown) of DHCT 16 and/or the MOD server. If DHCT 16 has a local storage device, either internally or externally connected via a communication port or local storage interface, it can be used to alternatively store user-created bookmark information rather than employing the MOD server or in addition to the MOD server. Attributes comprising a user-created bookmark include the bookmark's name, the scene's representative image and/or thumbnail, the start time of the scene in relation to the beginning of the movie or in relation to some other accessible starting point of the movie such as a chapter, the duration of the scene, the time and date that the user created the bookmark, identification of the user that created the bookmark, and other attributes described herein.

The set of bookmark attributes can be structured into a database and each set of attributes can comprise a database record in a bookmark database (not shown). Bookmark information described herein is read from the DHCT's memory to fill respective data fields in screens presented to a user. Alternatively, bookmark information can be read from the DHCT's local storage (if applicable) or the MOD server.

Regardless of where user-created bookmark information is stored, a subset of information is stored in read-write non-volatile memory of DHCT 16 by MOD client application 63 for MOD client application 63 to find bookmark information in the event that DHCT 16 experiences a power outage period, in accordance with a preferred embodiment. This set of bookmark information stored in non-volatile memory includes an indication as to whether there are user-created bookmarks (for which a single bit of non-volatile memory can be designated), and information such as a directory path or user identification for where a copy of bookmark database can be retrieved from the MOD server (by MOD client application 63 communication with MOD server) or from the DHCT's local storage device (if applicable).

In an alternate embodiment in which a bookmark can be created in response to a user pressing a designated key on an input device, the bookmark is effected by MOD client application 63 upon a user pressing the designated key without stopping the presentation of the movie. MOD client application 63 causes an icon to be displayed momentarily on a corner of the display to provide visual feedback to the user that the bookmark was fulfilled. In an alternate embodiment, a user can select or enter names for bookmarks while a movie is

playing, at the conclusion of the movie, or by effecting user input to stop the movie and to activate respective screens for entering names for bookmarks.

FIG. 10 shows an example bookmark selection window 150 that is presented to the user after the user selects the "Play from a bookmarked scene" option 126 via the current rental window 120 (FIG. 7). Central area 151 contains bookmark images from bookmarked scenes, such bookmark image 152, and a highlighted bookmark area 153. The user may activate the up, down, left, and right arrow buttons on the remote control device 80 in order to move the highlighted bookmark area 153 and to designate a bookmark image as the highlighted bookmark image. The left and right arrow buttons may also be used to scroll through any additional bookmark images that are not currently shown. For example activating the right arrow button while bookmark image 154 is displayed in the highlighted bookmark area 153 would cause another bookmark image to be displayed in place of bookmark image 154 which in turn is displayed in place of bookmark image 155. Once a desired bookmark image is highlighted, the user may then activate the select button 87 on the remote control device 80 in order to view the media rental identified in top portion 101 beginning at the currently highlighted bookmark image or a corresponding scene. Alternatively, thumbnail presentations of the respective bookmark images can be displayed to accommodate a larger number of visual bookmark representations on a single screen presentation to the user.

FIG. 11 shows an example bookmark selection window 160 that is an alternative embodiment to selection window 150. Central area 151 contains a bookmark image 161 from a bookmarked scene. The user may use the left and right arrow buttons on the remote control device 80 in order to browse through the available bookmark images. The bookmark images are arranged in order of their position in the video presentation. Activating the right arrow button on the remote control device 80 would result in the next bookmark in the sequence of bookmarks being displayed, whereas activating the left arrow button would result in the preceding bookmark being displayed. The user may then activate the select button 87 on the remote control device 80 in order to view a media rental beginning at a currently displayed bookmark image or a corresponding scene.

FIG. 12 shows an example bookmark selection window 170 that is yet another alternative embodiment to selection window 150 (FIG. 10). Bookmarked scenes are

identified in bookmarked scenes list 171 which contains bookmarked scene entries, such as bookmarked scene entry 172, and a highlighted entry area 173. The entries in the scenes list 171 are arranged in order of their position in the video presentation. The user may use the up and down arrow buttons 83, 84 on the remote control device in order to scroll through the bookmarked scenes list 171. As the user scrolls through the bookmarked scenes list 171, the image displayed in reduced screen area 106 is replaced with an image that corresponds to the entry showing in the highlighted entry area 173. The user may then use the select button 87 on the remote control device 80 in order to view a media rental beginning at the scene identified in the reduced screen area 106 and the highlighted entry area 173. A graphical indication 174 reflects the position of the video image shown in the reduced screen area 106 relative to the duration of the video presentation identified in information area 121.

FIG. 13 shows example window 180 that is an alternative embodiment to current rental window 120. Example window 180 is presented to the user after the user stops a VOD presentation. In this alternative embodiment, the user may set a bookmark by activating the "B" button 89 on the remote control device 80. Once a bookmark is set, it is accessible via a playing list 182 and assigned a number based on the location of the bookmarked scene in the VOD presentation. The user may request that the VOD presentation be played starting from a bookmarked scene by using the remote control device 80 to select a bookmarked scene from the playing list 182.

In one embodiment, the user may set a bookmark by activating the "B" button 89 while viewing a video presentation. In this embodiment, the user receives a confirmation message on the television screen informing the user that a bookmark has been set at the video image that was being presented to the user when the user activated the "B" button 89. The user may later request that the VOD presentation be played starting from a bookmarked scene via one of the bookmark selection methods previously discussed.

In one embodiment, MOD client application features the capability to create bookmarks and insert them into one or more bookmark lists. The user is prompted to select a bookmark list from a plurality of bookmark lists at the time each bookmark is created by a user. Alternatively, the user is prompted to activate a first bookmark list from a plurality of bookmark lists into which all subsequent user-created bookmarks will be inserted.

In another embodiment, each individual viewer or member of the family has a respective personalized bookmark list. A list may simply be titled with a suffix or prefix number or letter for which individual viewers appropriate under personal agreement among each other. Alternatively, a list may be respectively named by a user entering alphanumeric strings with an input device such as a keyboard or a remote control device.

In one embodiment, upon expiration of a rented media title's rental access period, the information representing all bookmark lists in memory, MOD server, and/or in DHCT's local storage device is discarded. In an alternative embodiment, upon expiration of a rented media title's rental access period, the user is presented a window that allows the user to discard or retain the contents of bookmark lists associated with the expired media title.

It should be emphasized that the above-described embodiments of the present invention, particularly any "preferred embodiments", are merely possible examples of the implementations, merely setting forth a clear understanding of the principles of the inventions. Many variations and modifications may be made to the above-described embodiments of the invention without departing substantially from the spirit of the principles of the invention. All such modifications and variations are intended to be included herein within the scope of the disclosure and present invention and protected by the following claims.

Therefore, having thus described the invention, the following is claimed:

CLAIMS

Therefore, having thus described the invention, the following is claimed:

1. A method for providing media to a user via an interactive media services client device coupled to a programmable media services server device, said method comprising steps of:

receiving a first user input associated with a visual scene contained in a sequential visual media;

storing information related to said visual scene in memory;

receiving a second user input requesting said visual scene in said sequential visual media; and

providing the user with said visual scene in said sequential visual media.

2. The method of claim 1, further comprising the step of:

after providing the user with said visual scene, providing the user with a portion of said sequential visual media that is subsequent to said visual scene in said sequential visual media.

3. The method of claim 2, wherein said visual scene and said portion of said sequential visual media are displayed on a television screen.

4. The method of claim 1, wherein the sequential visual media is a video-on-demand presentation.

5. The method of claim 1, wherein a user input is received from a remote control device.

6. The method of claim 1, wherein the user provides said second user input by selecting an option displayed on a display device.

7. The method of claim 1, further comprising the step of:

receiving user input assigning a character sequence to said visual scene in said visual media;

storing data corresponding to said character sequence in memory; and

displaying said character sequence in association with said visual scene.

8. A method for providing media to a user via an interactive media services client device coupled to a programmable media services server device, said method comprising steps of:

receiving a user input requesting that a visual scene contained in a video presentation be bookmarked;

storing information related to said visual scene in memory;

receiving a user input requesting that said visual scene be displayed; and

providing the user with said visual scene.

9. The method of claim 8, wherein said user input is received while said user is viewing said scene in said contained in said video presentation.

10. The method of claim 9, wherein said user receives feedback confirming the insertion of a bookmark.

11. The method of claim 9, wherein said feedback comprises an icon displayed on a display device.

12. An interactive media services client device for presenting media to a user coupled to a programmable media services server device, said client device comprising:

memory;

data contained in said memory identifying a visual scene contained in a sequential visual media, wherein said data is stored in response to user input associated with said visual scene;

a processor configured to provide signals containing said visual scene in response to user input requesting said visual scene, wherein said visual scene is displayed on a display device.

13. The client device of claim 12, wherein the processor is further configured to provide the user with a portion of said sequential visual media that is subsequent to said visual scene in said sequential visual media.

14. The client device of claim 12, wherein the sequential visual media is a video-on-demand presentation.

15. The client device of claim 12, wherein a user input is received from a remote control device.

16. The client device of claim 12, wherein the user provides said user input requesting said visual scene by selecting an option displayed on the display device.

17. The client device of claim 12, wherein the display device is a television.

18. The client device of claim 12, wherein the processor is further configured to provide a character sequence describing said visual scene.

19. The client device of claim 18, wherein said character sequence is determined by user input.

20. An interactive media services client device for presenting media to a user coupled to a programmable media services server device, said client device comprising:

means for storing information identifying a visual scene contained in a sequential visual media, wherein said information is stored in response to user input associated with said visual scene;

processing means configured to provide signals containing said visual scene in response to user input requesting said visual scene, wherein said visual scene is displayed on a display device.

21. The client device of claim 20, wherein the processing means is further configured to provide the user with a portion of said sequential visual media that is subsequent to said visual scene in said sequential visual media.

22. The client device of claim 20, wherein the sequential visual media is a video-on-demand presentation.

23. The client device of claim 20, wherein a user input is received from a remote control device.

24. The client device of claim 20, wherein the user provides said user input requesting said visual scene by selecting an option displayed on the display device.

25. The client device of claim 20, wherein the display device is a television.

26. The client device of claim 20, wherein the processing means is further configured to provide a character sequence describing said visual scene.

27. The client device of claim 26, wherein said character sequence is determined by user input.

28. A programmable media services server device for presenting media to a user via an interactive media services client device, said server device comprising:

memory;

data contained in said memory identifying a visual scene contained in a sequential visual media, wherein said data is stored in response to user input that is associated with said visual scene;

a processor configured to provide signals via said client device containing said visual scene in response to user input requesting said visual scene, wherein said visual scene is displayed on a display device.

29. The server device of claim 28, wherein the processor is further configured to provide the user with a portion of said sequential visual media that is subsequent to said visual scene in said sequential visual media.

30. The server device of claim 28, wherein the sequential visual media is a video-on-demand presentation.

31. The server device of claim 28, wherein a user input is received from a remote control device.

32. The server device of claim 28, wherein the user provides said user input requesting said visual scene by selecting an option displayed on the display device.

33. The server device of claim 28, wherein the display device is a television.

34. The server device of claim 28, wherein the processor is further configured to provide a character sequence describing said visual scene.

35. The server device of claim 34, wherein said character sequence is determined by user input.

36. A programmable media services server device for presenting media to a user via an interactive media services client device, said server device comprising:

means for storing information identifying a visual scene contained in a sequential visual media, wherein said information is stored in response to user input associated with said visual scene;

processing means configured to provide signals containing said visual scene in response to user input requesting said visual scene, wherein said visual scene is displayed on a display device.

37. The server device of claim 36, wherein the processing means is further configured to provide the user with a portion of said sequential visual media that is subsequent to said visual scene in said sequential visual media.

38. The server device of claim 36, wherein the sequential visual media is a video-on-demand presentation.

39. The server device of claim 36, wherein a user input is received from a remote control device.

40. The server device of claim 36, wherein the user provides said user input requesting said visual scene by selecting an option displayed on the display device.

41. The server device of claim 36, wherein the display device is a television.

42. The server device of claim 36, wherein the processing means is further configured to provide a character sequence describing said visual scene.

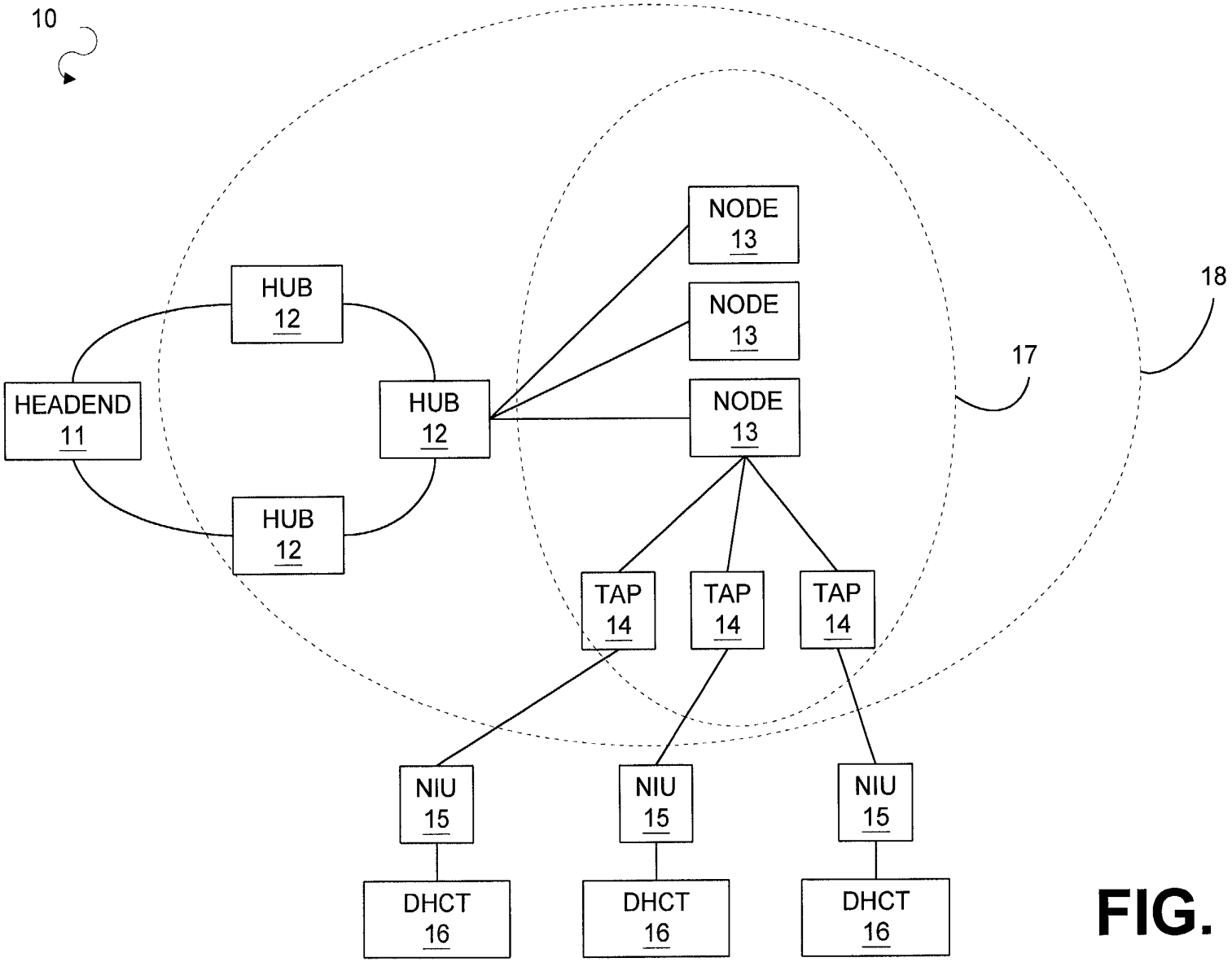
43. The server device of claim 42, wherein said character sequence is determined by user input.

Sheet 1 of 1 Drawings

ABSTRACT

The invention can be viewed as a method for providing media to a user via an interactive media services client device coupled to a programmable media services server device. The method includes receiving user input associated with a visual scene contained in a sequential visual media, storing information related to the visual scene in memory, receiving user input requesting the visual scene, and providing the user with the visual scene.

Express Mail Label No. EV 339 955 425 US


10
HEADEND
11
HUB
12
HUB
12
HUB
12
NODE
13
NODE
13
NODE
13
17
18
TAP
14
TAP
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NIU
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NIU
15
NIU
15
DHCT
16
DHCT
16
DHCT
16

FIG. 1

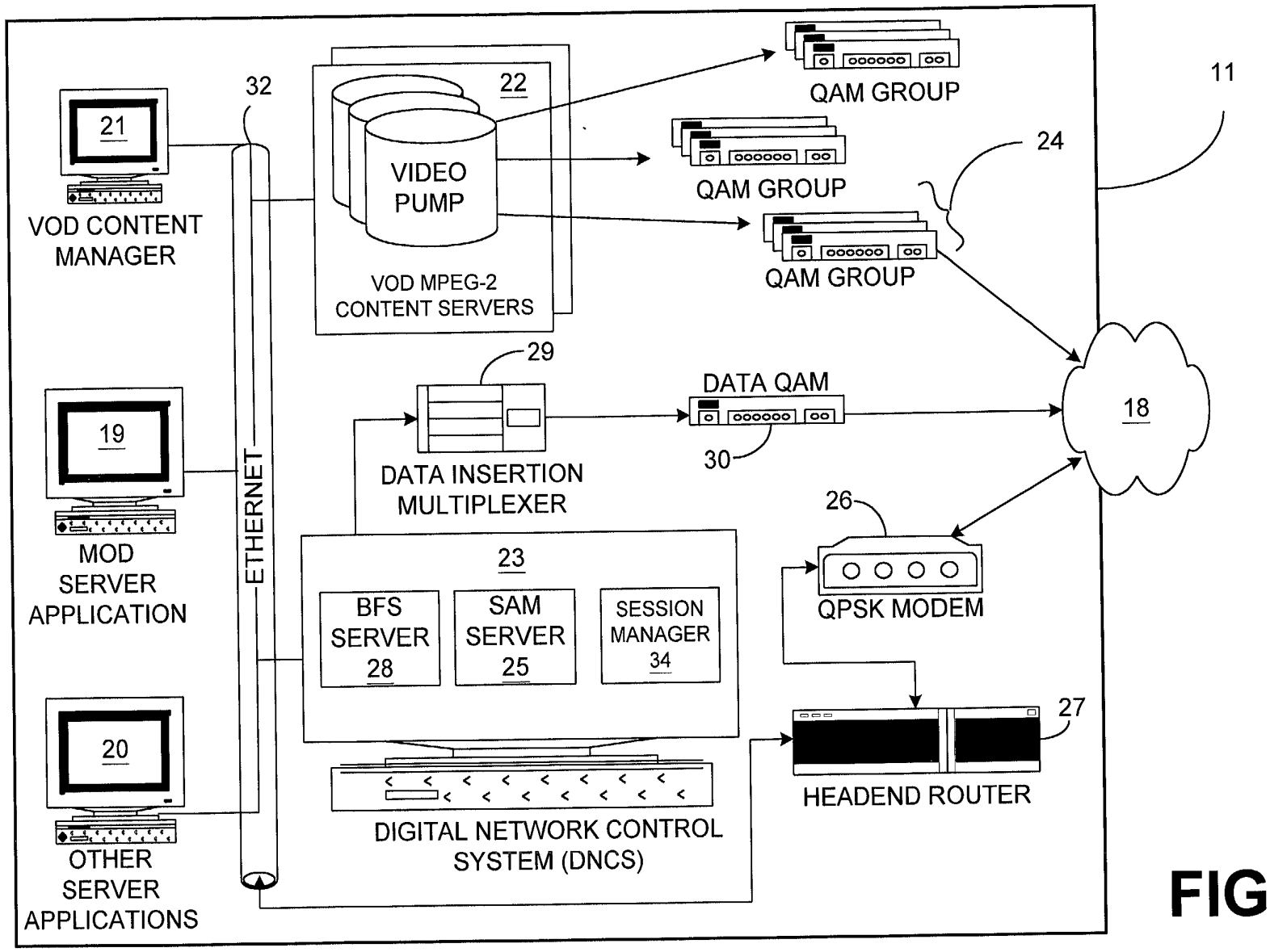
11
32
21
VOD CONTENT MANAGER
22
VIDEO PUMP
VOD MPEG-2 CONTENT SERVERS
QAM GROUP
QAM GROUP
QAM GROUP
24
29
DATA QAM
30
DATA INSERTION MULTIPLEXER
18
19
MOD SERVER APPLICATION
ETHERNET
23
BFS SERVER 28
SAM SERVER 25
SESSION MANAGER 34
26
QPSK MODEM
20
OTHER SERVER APPLICATIONS
DIGITAL NETWORK CONTROL SYSTEM (DNCS)
27
HEADEND ROUTER

FIG. 2

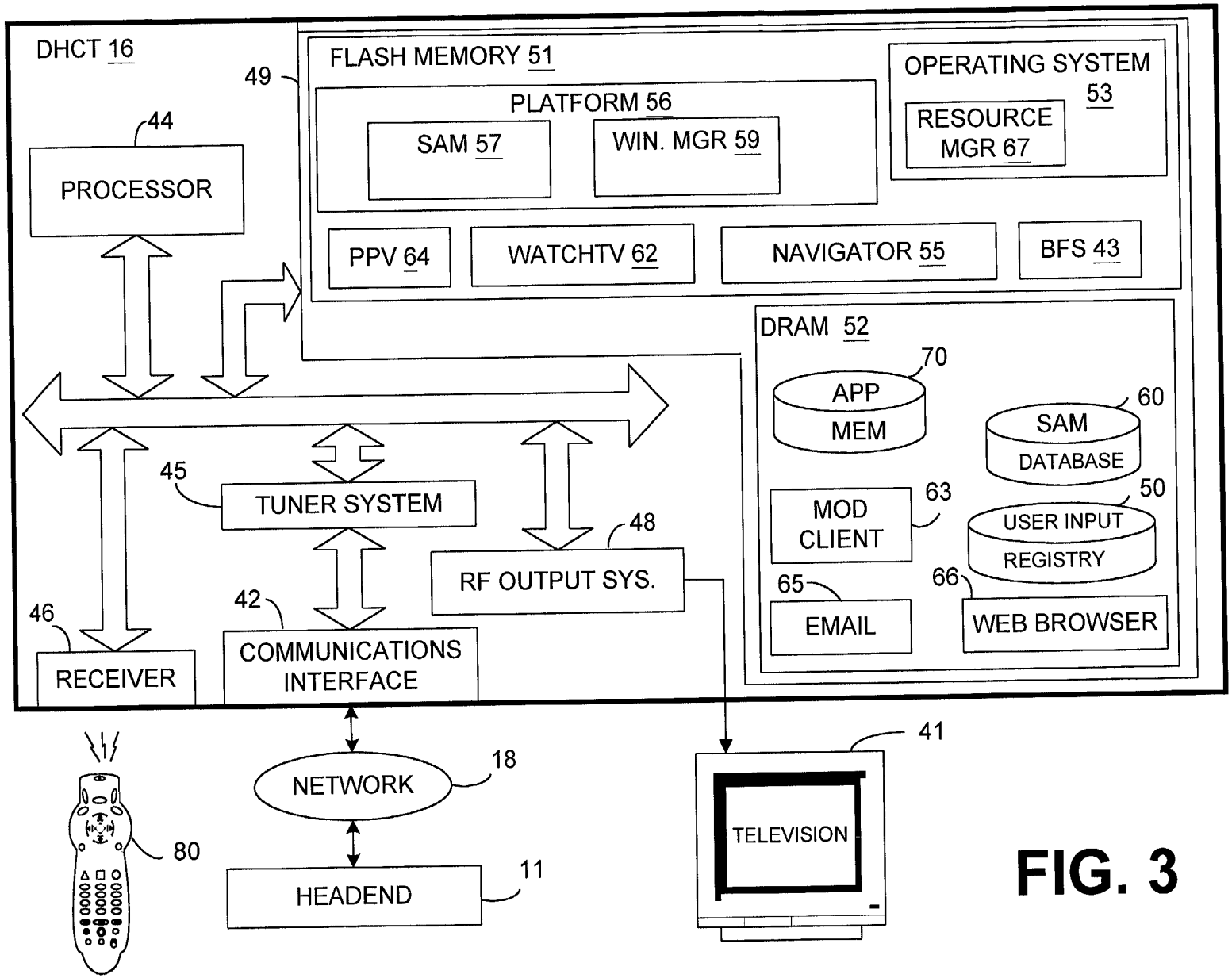
DHCT 16
49
FLASH MEMORY 51
OPERATING SYSTEM 53
PLATFORM 56
SAM 57
WIN. MGR 59
RESOURCE MGR 67
44
PROCESSOR
PPV 64
WATCHTV 62
NAVIGATOR 55
BFS 43
DRAM 52
70
APP MEM
60
SAM DATABASE
45
TUNER SYSTEM
63
MOD CLIENT
50
USER INPUT REGISTRY
48
RF OUTPUT SYS.
65
EMAIL
66
WEB BROWSER
46
RECEIVER
42
COMMUNICATIONS INTERFACE
41
TELEVISION
18
NETWORK
80
11
HEADEND

FIG. 3

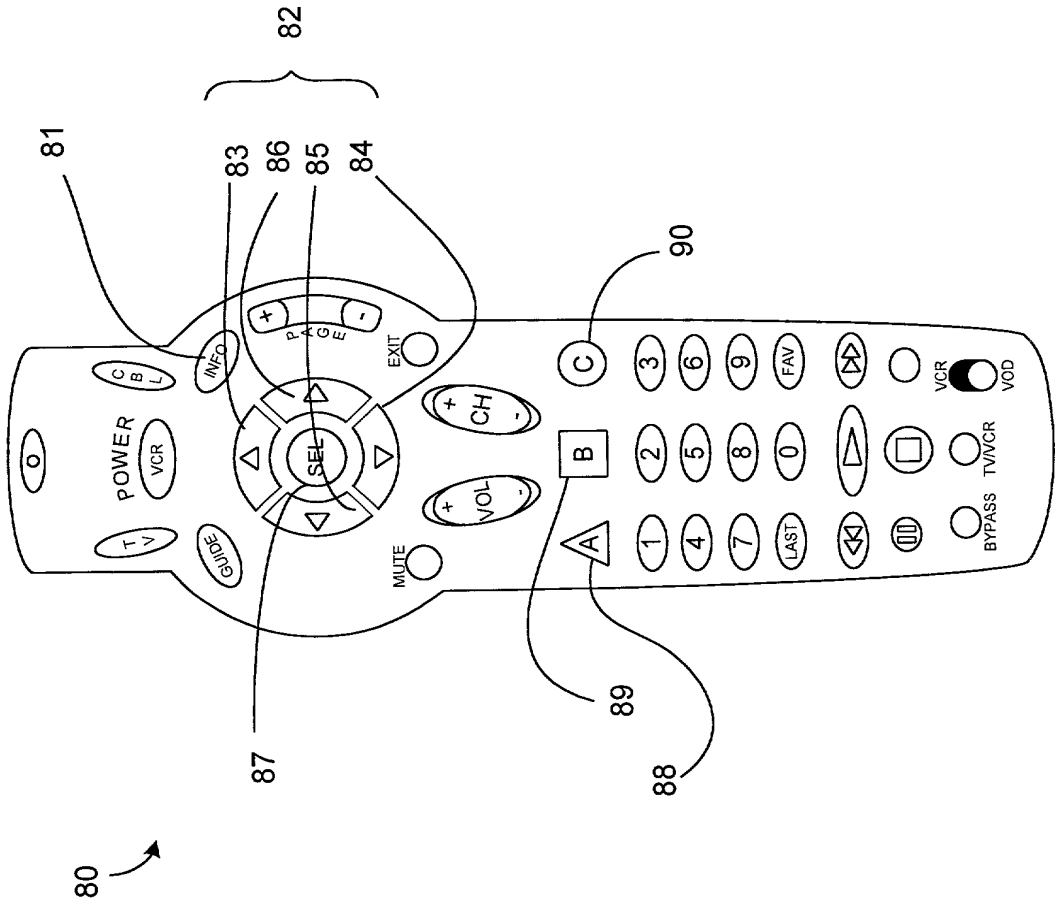
80
81
82
83
84
85
86
87
88
89
90
POWER
TV
VCR
CBL
GUIDE
INFO
SEL
PAGE
EXIT
CH
VOL
MUTE
A
B
C
FAV
LAST
VCR
VOD
TV/VCR
BYPASS

FIG. 4

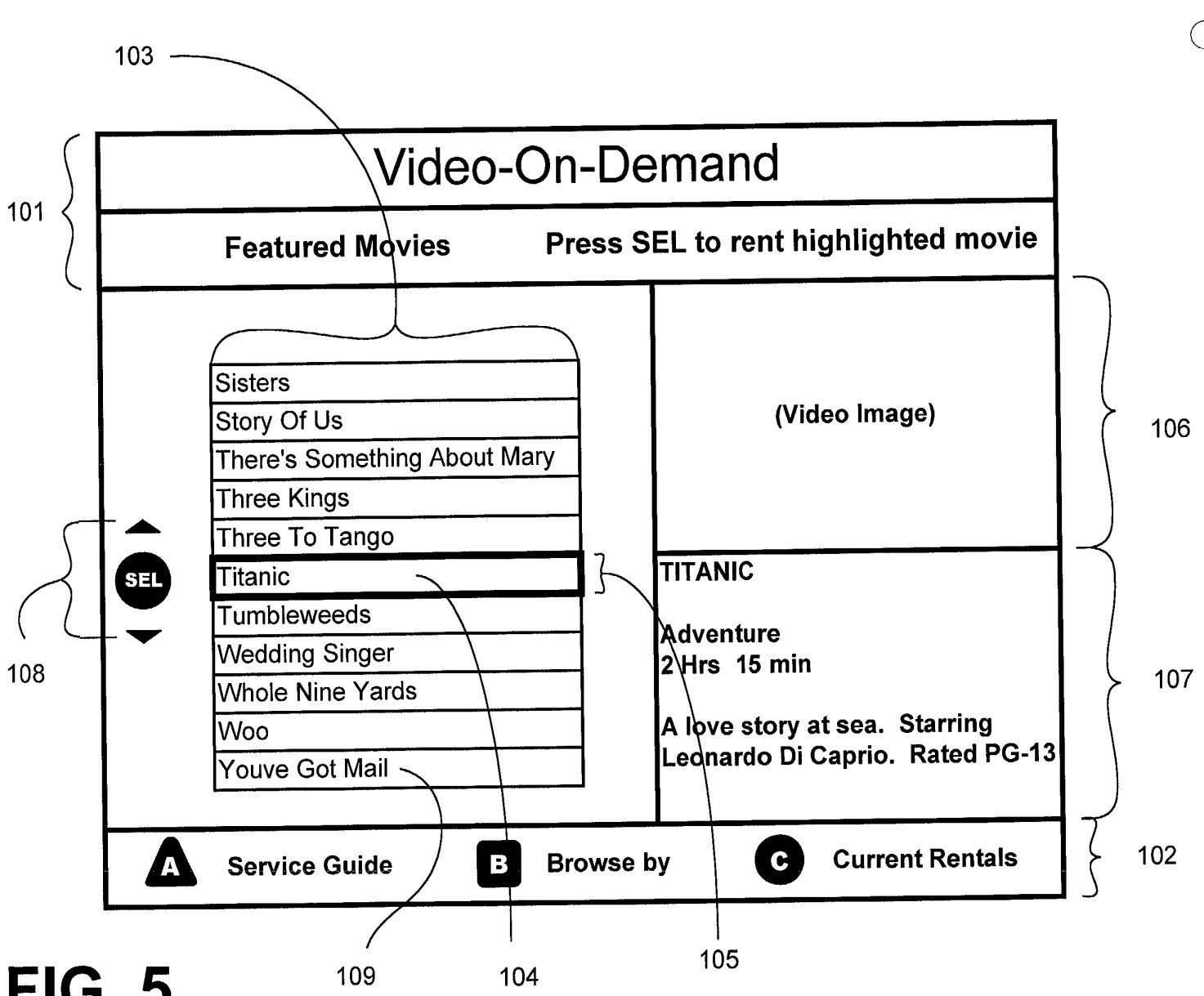
100
103
Video-On-Demand
101
Featured Movies
Press SEL to rent highlighted movie
Sisters
Story Of Us
There's Something About Mary
Three Kings
Three To Tango
Titanic
Tumbleweeds
Wedding Singer
Whole Nine Yards
Woo
Youve Got Mail
SEL
(Video Image)
106
TITANIC
Adventure
2 Hrs 15 min
A love story at sea. Starring Leonardo Di Caprio. Rated PG-13
107
108
A Service Guide
B Browse by
C Current Rentals
102
109
104
105

FIG. 5

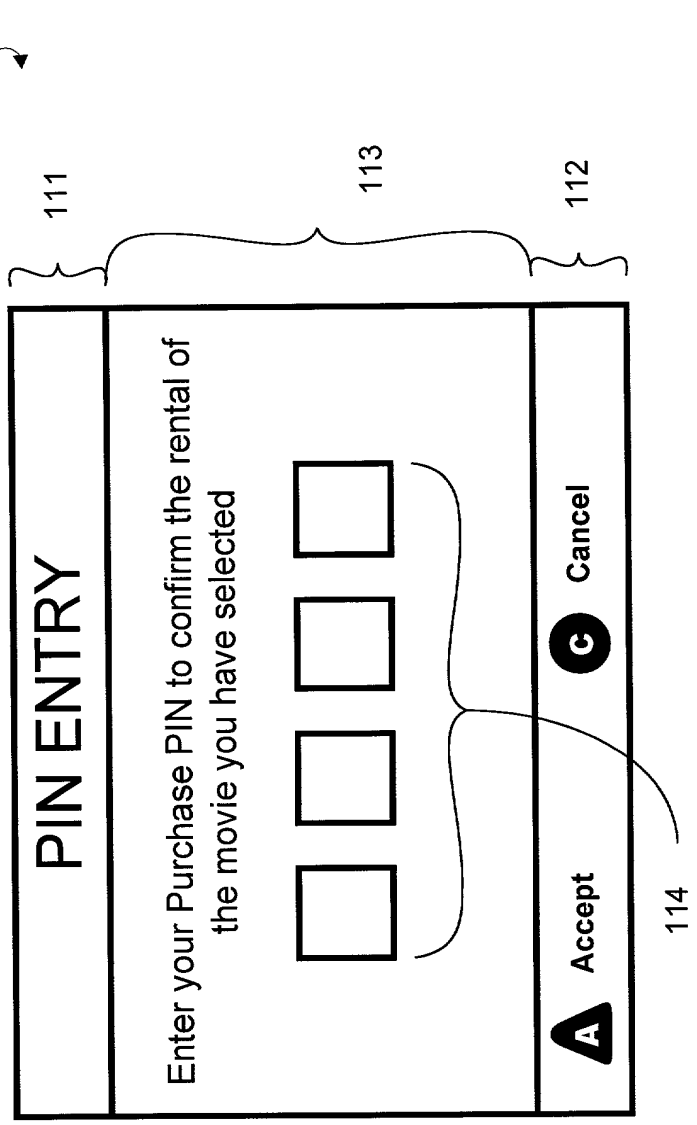
110
111
113
112
PIN ENTRY
Enter your Purchase PIN to confirm the rental of the movie you have selected
A Accept
C Cancel
114

FIG. 6

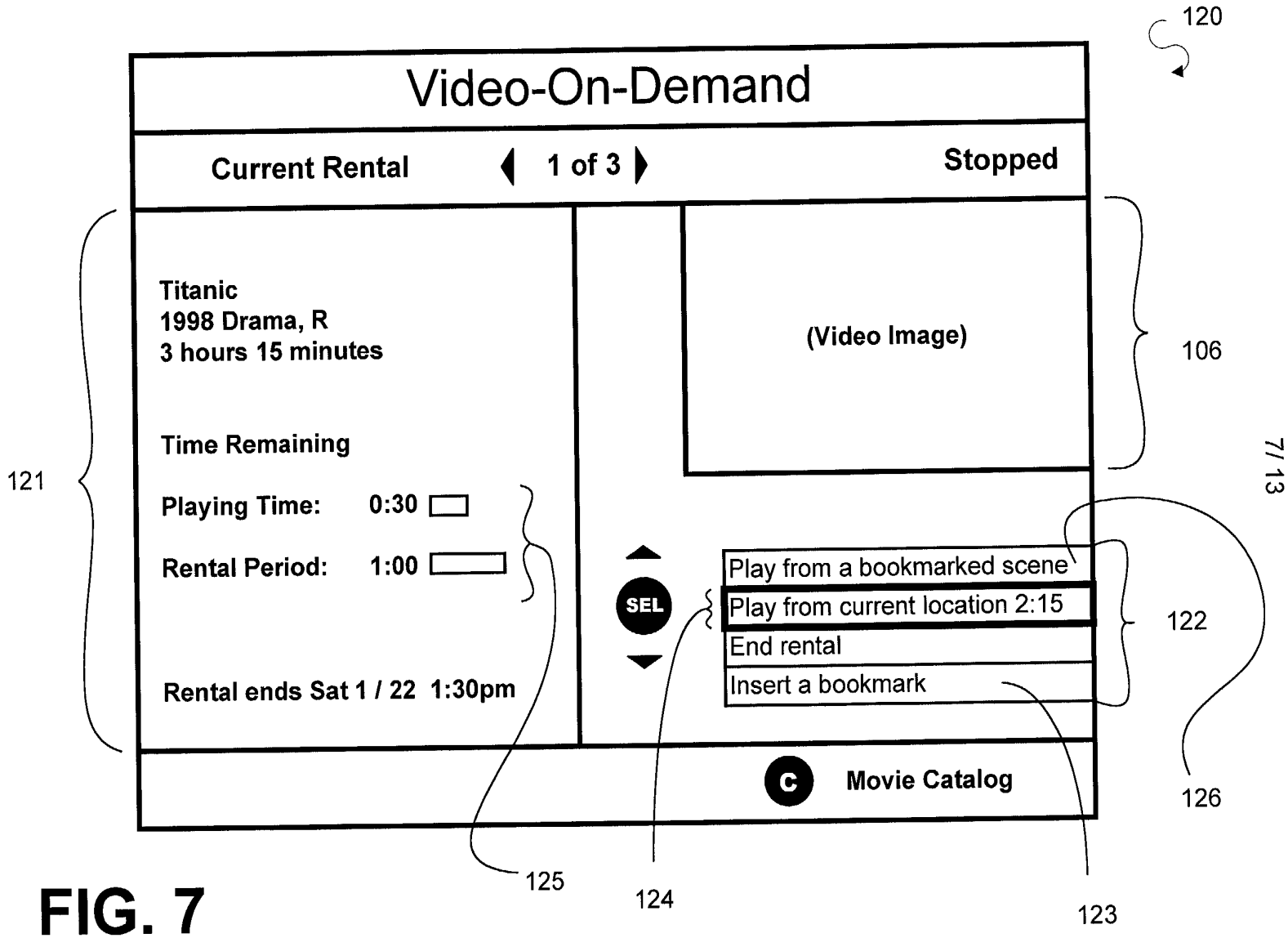
120
Video-On-Demand
Current Rental
1 of 3
Stopped
Titanic
1998 Drama, R
3 hours 15 minutes
(Video Image)
106
Time Remaining
121
Playing Time: 0:30
Rental Period: 1:00
SEL
Play from a bookmarked scene
Play from current location 2:15
End rental
Insert a bookmark
122
Rental ends Sat 1 / 22 1:30pm
C
Movie Catalog
126
125
124
123

FIG. 7

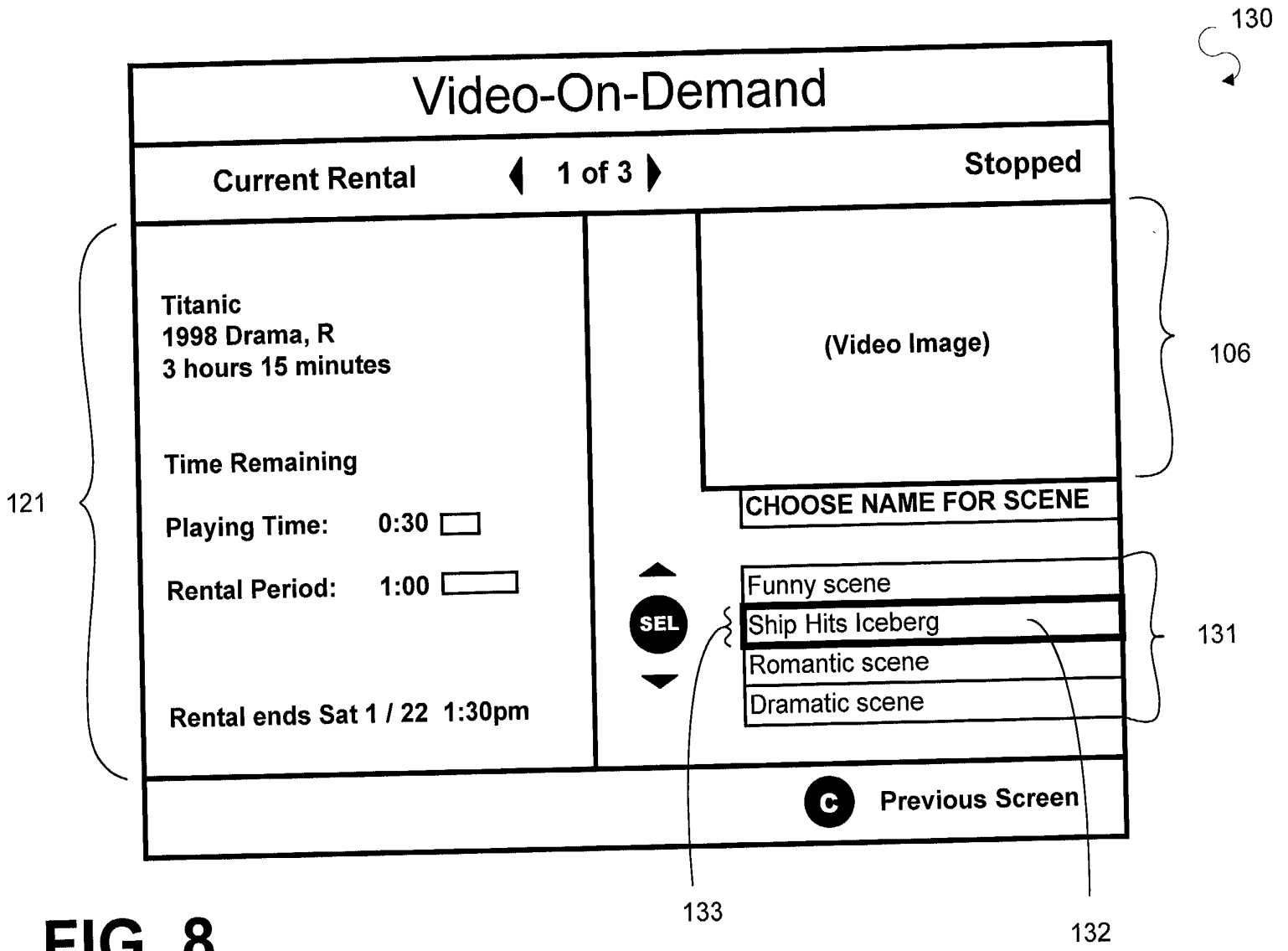
130
Video-On-Demand
Current Rental
1 of 3
Stopped
Titanic
1998 Drama, R
3 hours 15 minutes
Time Remaining
Playing Time: 0:30
Rental Period: 1:00
Rental ends Sat 1 / 22 1:30pm
(Video Image)
106
121
CHOOSE NAME FOR SCENE
SEL
Funny scene
Ship Hits Iceberg
Romantic scene
Dramatic scene
131
C
Previous Screen
133
132

FIG. 8

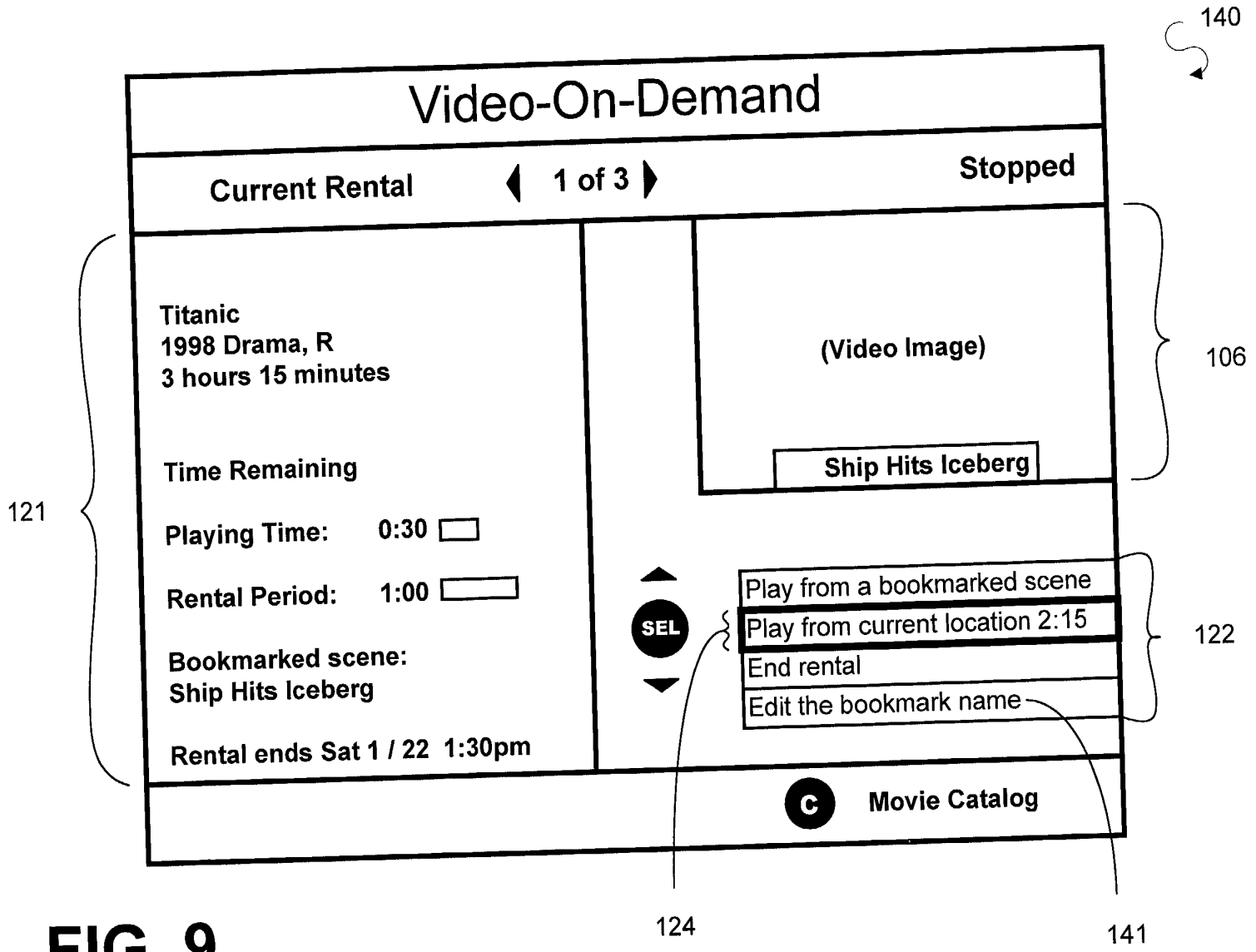
140
Video-On-Demand
Current Rental
1 of 3
Stopped
Titanic
1998 Drama, R
3 hours 15 minutes
Time Remaining
Playing Time: 0:30
Rental Period: 1:00
Bookmarked scene:
Ship Hits Iceberg
Rental ends Sat 1 / 22 1:30pm
(Video Image)
Ship Hits Iceberg
106
121
SEL
Play from a bookmarked scene
Play from current location 2:15
End rental
Edit the bookmark name
122
C
Movie Catalog
124
141

FIG. 9

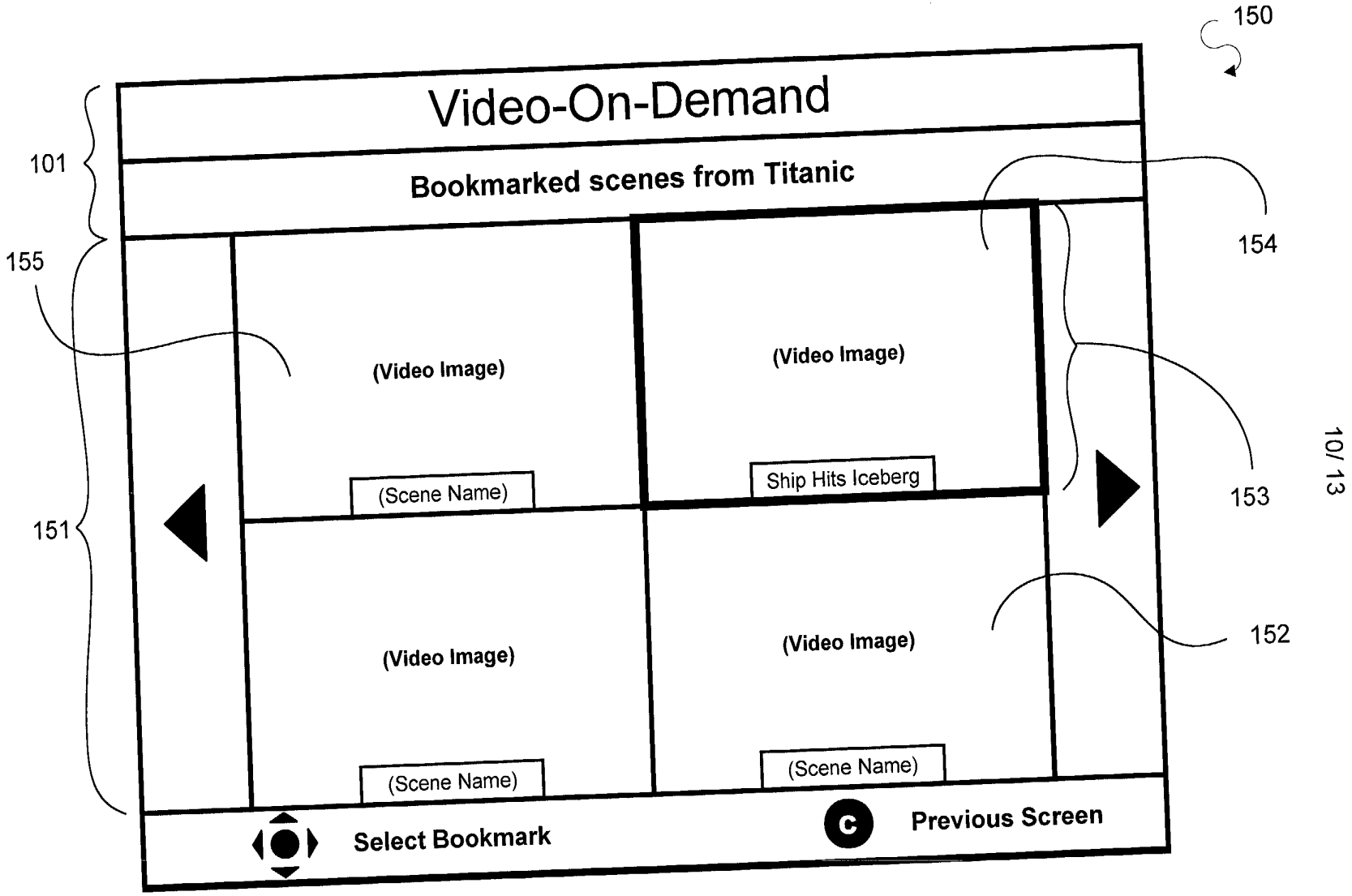
150
Video-On-Demand
101
Bookmarked scenes from Titanic
155
154
(Video Image)
(Video Image)
(Scene Name)
Ship Hits Iceberg
153
151
(Video Image)
(Video Image)
152
(Scene Name)
(Scene Name)
Select Bookmark
C
Previous Screen

FIG. 10

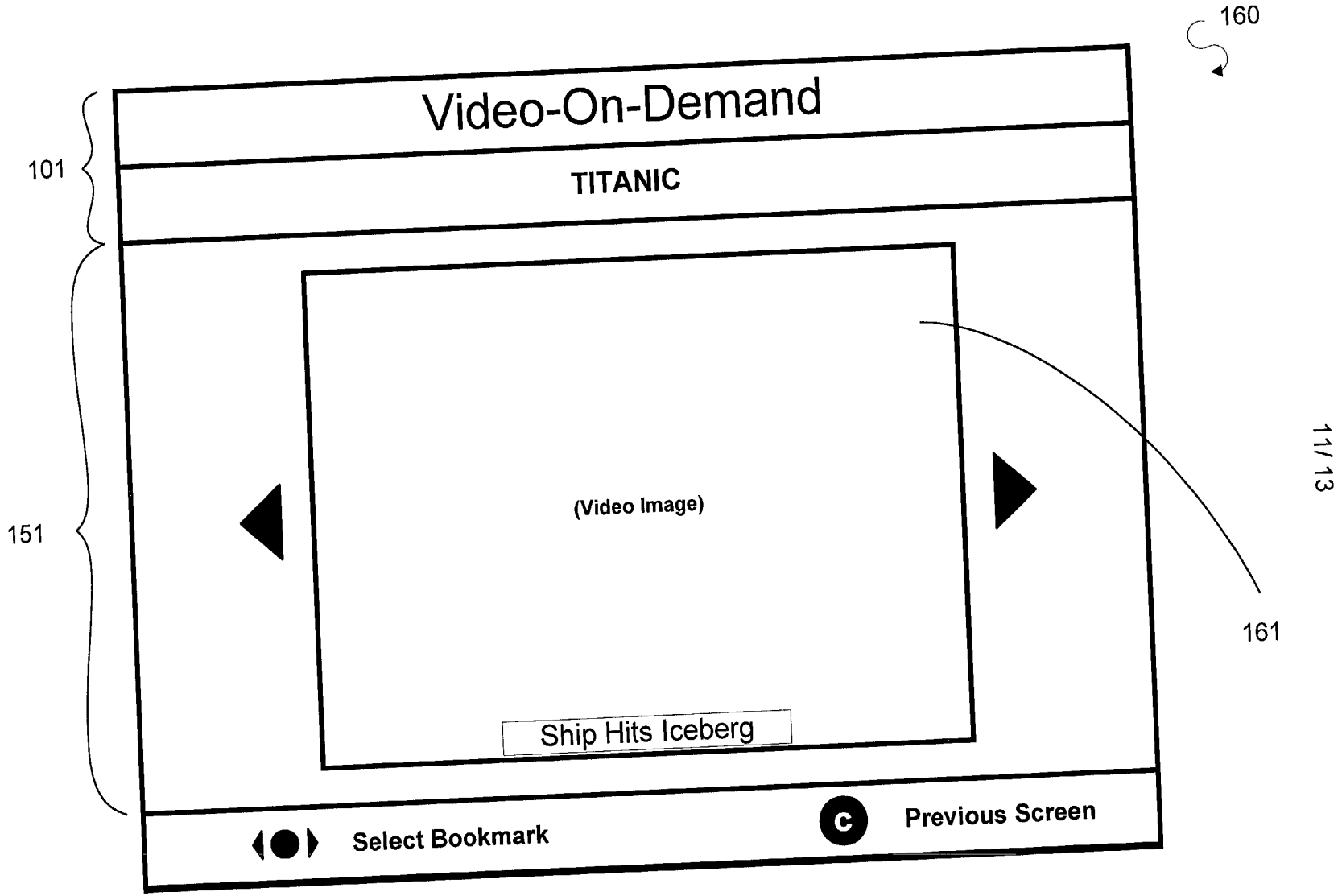
160
Video-On-Demand
TITANIC
101
151
(Video Image)
Ship Hits Iceberg
161
Select Bookmark
C
Previous Screen

FIG. 11

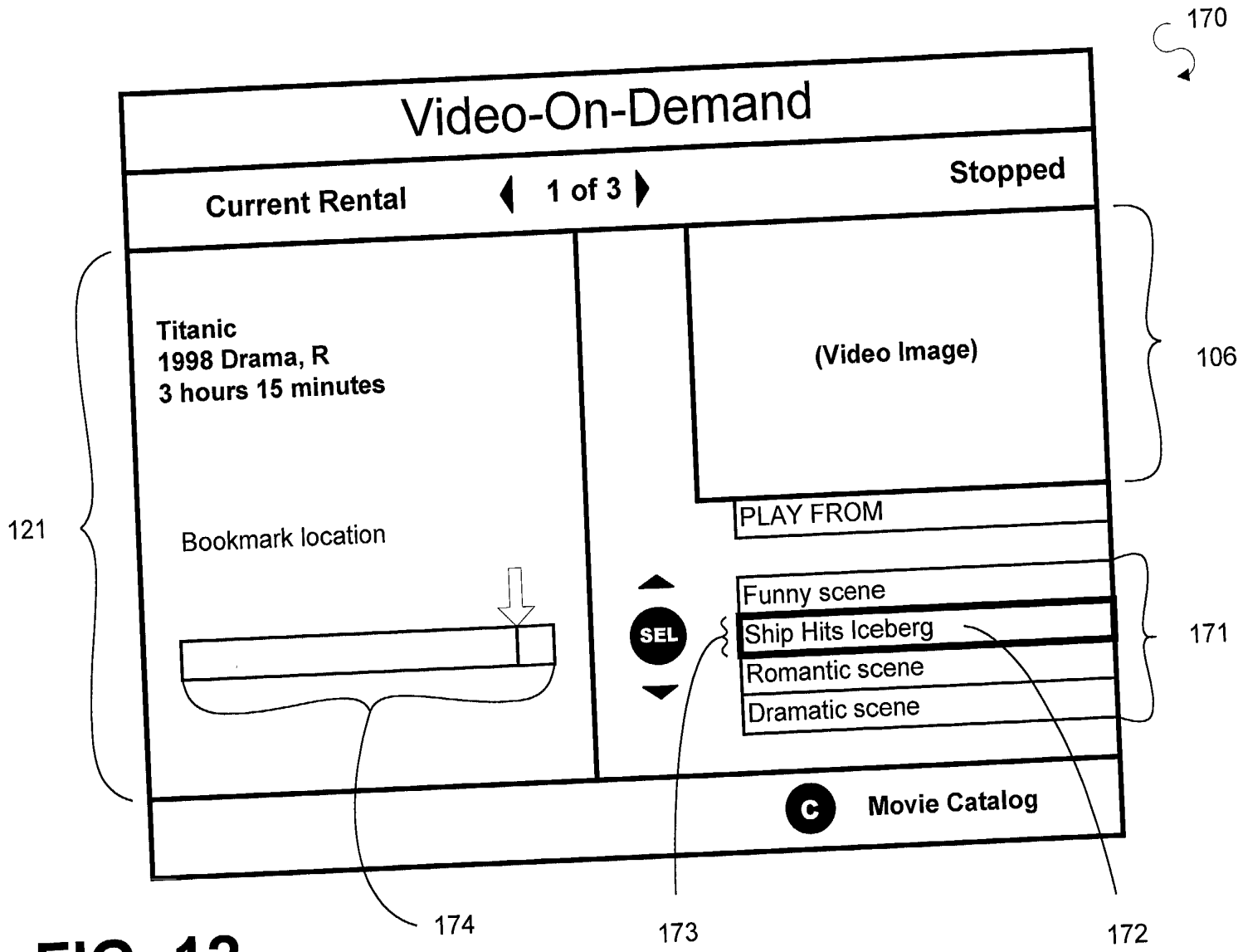
170
Video-On-Demand
Current Rental
1 of 3
Stopped
Titanic
1998 Drama, R
3 hours 15 minutes
(Video Image)
106
PLAY FROM
121
Bookmark location
SEL
Funny scene
Ship Hits Iceberg
Romantic scene
Dramatic scene
171
C
Movie Catalog
174
173
172

FIG. 12

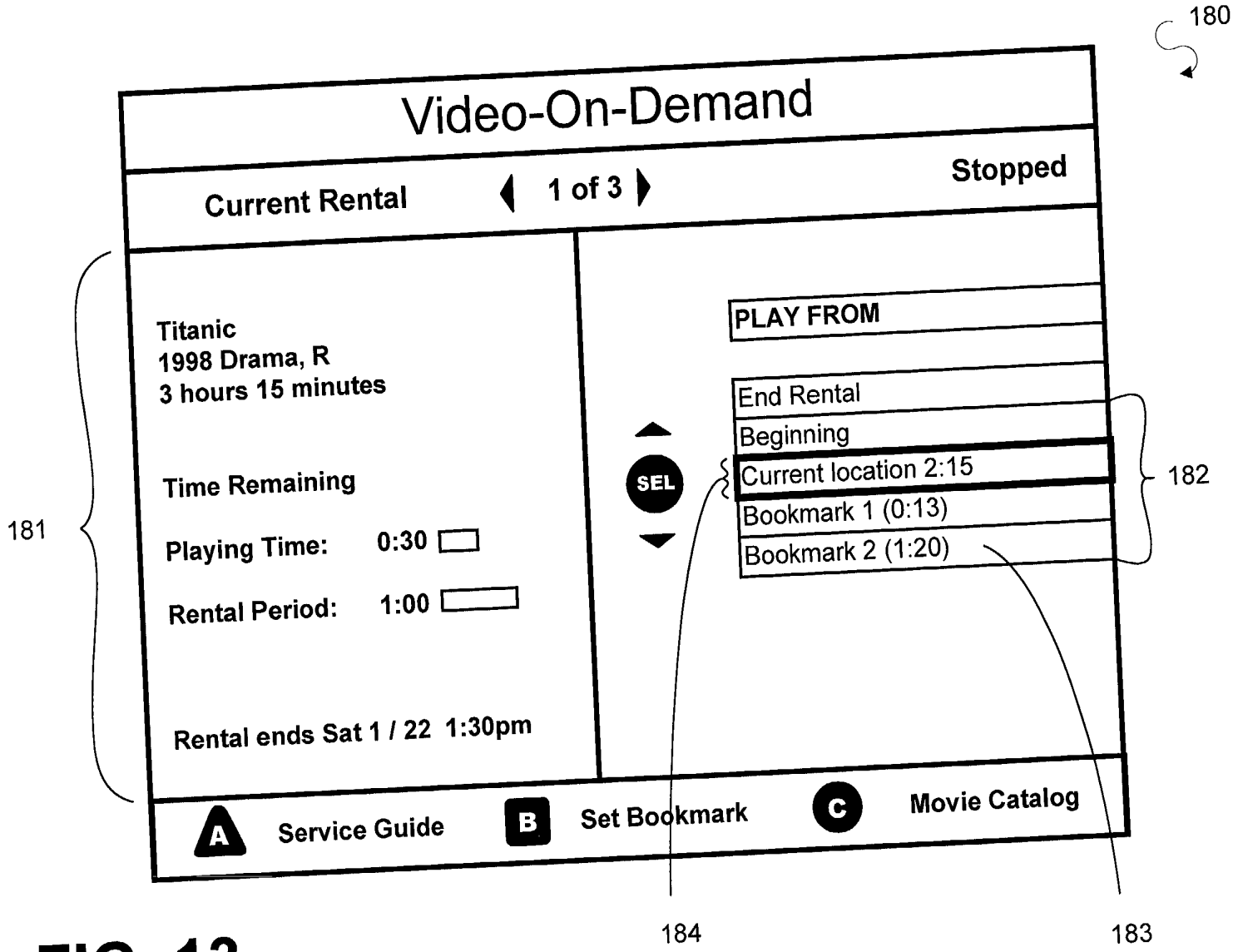
180
Video-On-Demand
Current Rental
1 of 3
Stopped
Titanic
1998 Drama, R
3 hours 15 minutes
Time Remaining
Playing Time: 0:30
Rental Period: 1:00
Rental ends Sat 1 / 22 1:30pm
PLAY FROM
End Rental
Beginning
Current location 2:15
Bookmark 1 (0:13)
Bookmark 2 (1:20)
SEL
A Service Guide
B Set Bookmark
C Movie Catalog
181
182
184
183

FIG. 13

PATENT APPLICATION DECLARATION
COMBINED WITH POWER OF ATTORNEY

Attorney's Docket No.**A-6687**

☒ Regular (Utility) ☐ Design Application

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

MEDIA-ON-DEMAND BOOKMARK SYSTEM

the specification of which:

☒ is attached hereto ☐ was filed on:

as U.S. Serial No.:

and was amended on

(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119, of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign/PCT Application(s):

☒ no such application(s) filed. ☐ such application(s) identified as follows:

Country	Application Number	Date of Filing *(day, month, year)*	Priority Claimed Under 37 USC 119
			☐Yes ☐No

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional applications(s) listed below:

Prior Provisional Application(s):

☐ no such application(s) filed. ☒ Such application(s) identified as follows:

Application Number	Date of Filing *(day, month, year)*
60/170,302	13 DECEMBER 1999

I hereby claim the priority benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which is material to the examination of this application and which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Prior U.S. Application(s):

☐ no such application(s) filed. ☒ such application(s) as follows:

Application No.	Filing Date *(day, month, year)*	Status *(Patented, Pending, Abandoned)*
09/590/488	9 JUNE 2000	PENDING

I hereby declare that: as to any claimed subject matter of this application which is common to my earlier United States or foreign application(s), if any, which I have identified above and claimed the benefit of priority thereof, I do not believe that the same was ever known or used in the United States before my invention thereof or patented or described in any printed publication in any country before my invention thereof or more than one year prior to the first of said earlier application(s), or in public use or on sale in the United States more than one year prior to the first of said earlier application(s), and that the said common subject matter has not been patented or made the subject of an inventor's certificate before the date of the first of said earlier U.S. application(s) in any country foreign to the United States on an application, filed by me or my legal representatives or assigns more than twelve months (six months if the present application is a Design patent application) prior to the first of said earlier U.S. application(s), if any; and that, as to any claimed subject matter of this application which is not common to said earlier application(s), if any, I do not know and do not believe that the same was ever known or used in the United States before my invention thereof or patented or described in any printed publication in any country before my invention thereof or more than one year prior to the date of this application, or in public use or on sale in the United States more than one year prior to the date of this application, and that said subject matter has not been patented or made the subject of an inventor's certificate in any country foreign to the United States on an application filed by me or my legal representatives or assigns more than twelve months (six months if the present application is a Design patent application) prior to the date of this application.

I HEREBY APPOINT THE FOLLOWING AS MY ATTORNEY(S) OR AGENT(S) WITH FULL POWER OF SUBSTITUTION TO PROSECUTE THIS APPLICATION AND TRANSACT ALL BUSINESS IN THE PATENT AND TRADEMARK OFFICE CONNECTED THEREWITH:

NAME(S)	REG. NO.(S)	ASSOCIATE POWER OF ATTORNEY ATTACHED
Kenneth M. Massaroni	33,015	☐ Yes ☒ No
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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